

ACTA METALLURGICA ET MATERIALIA

CONTENTS OF VOLUME 38

NUMBER 1

- | | | |
|--|-----|---|
| W. Kurz and R. Trivedi | 1 | Overview No. 87: Solidification microstructures: recent developments and future directions |
| D. Y. Li, X. F. Wu and T. Ko | 19 | The texture of Ti-51.5 at.% Ni rolling plate and its effect on the all-round shape memory effect |
| M. Morinaga, J. Saito,
N. Yukawa and H. Adachi | 25 | Electronic effect on the ductility of alloyed TiAl compound |
| G. Venkataraman,
Y-W. Chung, Y. Nakasone
and T. Mura | 31 | Free energy formulation of fatigue crack initiation along persistent slip bands: calculation of S-N curves and crack depths |
| O. Kwon and A. J. DeArdo | 41 | On the recovery and recrystallization which attend static softening in hot-deformed copper and aluminum |
| S. Suresh and
J. R. Brockenbrough | 55 | A theory for creep by interfacial flaw growth in ceramics and ceramic composites |
| Y. Deng and G. S. Ansell | 69 | Investigation of thermoelastic martensitic transformation in a Cu-Zn-Al alloy |
| R. M. Aikin Jr and
M. R. Plichta | 77 | Concurrent size and shape coarsening of γ' in Al-Ag |
| S. K. Wu, H. C. Lin and
T. S. Chou | 95 | A study of electrical resistivity, internal friction and shear modulus on an aged $\text{Ti}_{49}\text{Ni}_{51}$ alloy |
| B. J. Duggan, M. Sindel,
G. D. Köhlhoff and
K. Lücke | 103 | Oriented nucleation, oriented growth and twinning in cube texture formation |
| D. Romeu | 113 | Quasicrystals, crystals and multiply twinned particles: a unified growth model |
| S. K. Sharma and
P. Mukhopadhyay | 129 | Diffusion studies in the metallic glass $\text{Zr}_{61}\text{Ni}_{39}$ by Auger electron spectroscopy |
| A. Pawłowski and
W. Truszkowski | 135 | Mechanism of phase transformations during discontinuous dissolution in aged alloys |

NUMBER 2

- | | | |
|---|-----|--|
| | i | The <i>Acta Metallurgica</i> J. Herbert Hollomon Award |
| R. H. Dauskardt,
F. Haubensak and
R. O. Ritchie | 143 | Overview No. 88: On the interpretation of the fractal character of fracture surfaces |

F. R. N. Nabarro	161	Cottrell-Stokes Law and activation theory
M. Kikuchi, A. Fernandez Guillermet, M. Hillert, G. Cliff and G. W. Lorimer	165	Mechanism of Widmanstätten plate formation in chromium-rich Cr-Ni alloys
Y. Enomoto	173	Nucleation and growth processes with concentration fluctuations
J. P. Rogers III, P. Wynblatt, S. M. Foiles and M. I. Baskes	177	Monte Carlo simulation of the Cu-Ag (001) semicoherent interphase boundary
V. Tvergaard	185	Analysis of tensile properties for a whisker-reinforced metal-matrix composite
W. Schaarwächter and H. Ebener	195	Acoustic emission: a probe into dislocation dynamics in plasticity
E. M. Schulson, L. J. Briggs and I. Baker	207	The strength and ductility of Ni ₃ Si
D. V. Wilson, M. Zandrahimi and W. T. Roberts	215	Effects of changes in strain path on work-hardening in CP aluminium and an Al-Cu-Mg alloy
J. J. Hoyt	227	Linear spinodal decomposition in a regular ternary alloy
P. V. Evans, Satish Vitta, R. G. Hamerton, A. L. Greer and D. Turnbull	233	Solidification of germanium at high undercooling: morphological stability and the development of grain structure
D. Turnbull	243	The gram-atomic volumes of alloys of transition metals with Al and Si
Y-H. Chiao and D. R. Clarke	251	Residual stress induced fracture in glass-sapphire composites: planar geometry
D. R. Clarke and Y-H. Chiao	259	Residual stress induced fracture in glass-sapphire composites: cylindrical geometry
A. N. Campbell and D. Turnbull	269	Kinetics and morphology of the precipitation of Pb ₃ Au from dilute Pb(Au) solid solutions
M. Lübbehusen and H. Mehrer	283	Self-diffusion in α -iron: the influence of dislocations and the effect of the magnetic phase transition
J. L. Pelegrina and M. Ahlers	293	The stability of the martensitic phases in Cu-Zn-Al at an electron concentration of 1.534
A. Hamel, A. Vincent and R. Fougères	301	A model for the unloading in the saturation fatigue stage of pure polycrystalline aluminium

P. Pirouz, R. Chaim, U. Dahmen and K. H. Westmacott	313	The martensitic transformation in silicon—I. Experimental observations
U. Dahmen, K. H. Westmacott, P. Pirouz and R. Chaim	323	The martensitic transformation in silicon—II. Crystallographic analysis
P. Pirouz, U. Dahmen, K. H. Westmacott and R. Chaim	329	The martensitic transformation in silicon—III. Comparison with other work
C. Mai, S. Etienne, H. Satha et J. Perez	337	Étude et analyse de la déformation non-élastique autour de la transition vitreuse d'un verre borosilicate
A. Marty, M. Bessiere, F. Bley, Y. Calvayrac and S. Lefebvre	345	Determination of long range order in Ni-base ternary alloys by X-ray anomalous diffraction using synchrotron radiation
G. R. Hugo and B. C. Muddle	351	The morphology of precipitates in an Al-Ge alloy—I. Experimental observations
G. R. Hugo and B. C. Muddle	365	The morphology of precipitates in an Al-Ge alloy—II. Analysis using symmetry
A. Roósz and H. E. Exner	375	Numerical modelling of dendritic solidification in aluminium-rich Al-Cu-Mg alloys
<i>Corrigenda</i>	381	

NUMBER 3

A. van den Beukel and J. Sietsma	383	The glass transition as a free volume related kinetic phenomenon
W. J. Botta F., O. Florêncio, C. R. Grandini, H. Tejima and J. A. R. Jordão	391	Mechanical multiple relaxation spectra in Nb-Zr-O alloys
S. M. Pickard and F. Guiu	397	Strain-ageing behaviour of fatigued Fe-N-C alloys
Chun-Hway Hsueh	403	Evaluation of interfacial shear strength, residual clamping stress and coefficient of friction for fiber-reinforced ceramic composites
J. D. Hunt	411	A numerical analysis of time dependent isolated dendritic growth for conditions near the steady state
Q. F. Fang and T. S. Kê (Ge Tingsui)	419	Low temperature internal friction peaks associated with the interaction between dislocations and point defects in dilute aluminium-magnesium solid solutions
Zhao Jicheng and Jin Zhanpeng	425	Thermodynamics of the massive, bainitic and martensitic transformations in Fe-C, Fe-Ni, Fe-Cr and Fe-Cu alloys

B. Jönsson and J. Ågren	433	On the massive transformation
M. K. Stalker and J. E. Morral	439	Classification of concentration profiles in quaternary diffusion couples
O. R. Myhr and Ø. Grong	449	Dimensionless maps for heat flow analyses in fusion welding
R. S. Mishra, H. Jones and G. W. Greenwood	461	Creep of a low carbon steel at low stresses and intermediate temperatures
E. Tschegg, H. O. K. Kirchner and M. Kocak	469	Cracks at the ferrite-austenite interface
J. W. Chan, J. Glazer, Z. Mei, P. A. Kramer and J. W. Morris Jr	479	Fracture toughness of 304 stainless steel in an 8 tesla field
M. Manoharan and J. J. Lewandowski	489	Crack initiation and growth toughness of an aluminum metal-matrix composite
V. Raman and T. G. Langdon	497	Cyclic grain boundary migration and sliding in pure aluminum
L. L. Lisiecki and J. R. Weertman	509	Orientation effects on the elevated temperature fatigue of copper single crystals
K. Chattopadhyay, V. T. Swamy and S. L. Agarwala	521	The solidification behaviour of undercooled Al-Cu alloys in contact with the primary phases
E. Werner and W. Prantl	533	Slip transfer across grain and phase boundaries

NUMBER 4

E. L. Hall and Shyh-Chin Huang	539	Microstructures of rapidly-solidified binary TiAl alloys
M. A. Morris and D. G. Morris	551	Dispersoid additions and their effect on high temperature deformation of Fe-Al
Zi-Kui Liu and J. Ågren	561	On two-phase coherent equilibrium in binary alloys
J. Svoboda, I. Turek and V. Sklenička	573	Unified thermodynamic treatment of cavity nucleation and growth in high temperature creep
B. Orlans-Joliet, J. H. Driver and F. Montheillet	581	Plane strain compression of silicon-iron single crystals
L. C. Lim, Y. K. Tay and H. S. Fong	595	Fatigue damage and crack nucleation mechanisms at intermediate strain amplitudes
S. B. Biner and W. A. Spitzig	603	Densification of iron compacts with various initial porosities under hydrostatic pressure

C. R. Heiple, S. H. Carpenter and S. S. Christiansen	611	Fracture of boron particles in 2219 aluminum as a known acoustic emission source
C.-H. Lin, S. L. Sass, C. W. Allen and L. E. Rehn	619	Effects of electron and ion irradiation on the dislocation structure of [001] twist boundaries in Fe-S alloys
V. Lakshmanan, J. C. M. Li and C. L. Tsai	625	Magnetic domains induced by shear bands in metallic glasses
D. H. StJohn	631	The peritectic reaction
F. R. N. Nabarro	637	Kinetics of Mughrabi's model of internal stresses
P. Adeva, J. L. González-Carrasco and M. Aballe	643	Microstructure and mechanical properties of RS Ni-Cr-Al melt-spun alloys
M. Yoshihara and R. B. McLellan	655	Thermodynamics of the palladium-boron-hydrogen system
J. Courbon, M. Ignat and F. Louchet	663	Compression creep of $\langle 110 \rangle$ -oriented single crystals of nickel-base superalloy CMSX-2
J. Rösler and E. Arzt	671	A new model-based creep equation for dispersion strength- ened materials
S. Muto, R. Oshima and F. E. Fujita	685	Elastic softening and elastic strain energy consideration in the f.c.c.-f.c.t. transformation of Fe-Pd alloys
<i>Corrigenda</i>	695	

NUMBER 5

L. P. Kubin and Y. Estrin	697	Evolution of dislocation densities and the critical con- ditions for the Portevin-Le Châtelier effect
F. W. Noble, B. A. Senior and B. L. Eyre	709	The effect of phosphorus on the ductility of 9Cr-1Mo steels
P. V. Evans, G. Devaud, T. F. Kelly and Yeon-Wook Kim	719	Solidification of highly undercooled Si and Ge droplets
C. W. Price	727	Use of Kolmogorov-Johnson-Mehl-Avrami kinetics in recrystallization of metals and crystallization of metallic glasses
T. Takasugi, D. Shindo, O. Izumi and M. Hirabayashi	739	Metallographic and structural observations in the pseudo- binary section $\text{Ni}_3\text{Si}-\text{Ni}_3\text{Ti}$ of the Ni-Si-Ti system
T. Takasugi, M. Nagashima and O. Izumi	747	Strengthening and ductilization of Ni_3Si by the addition of Ti elements

A. Planes, R. Romero and M. Ahlers	757	The martensitic transition temperature in ternary Cu-Zn-Al alloys. Influence of the L2 ₁ structure
Y. Enomoto and R. Kato	765	Scaling behavior of two-dimensional vertex model for normal grain growth
Y. C. Chen, M. E. Fine and J. R. Weertman	771	Microstructural evolution and mechanical properties of rapidly solidified Al-Zr-V alloys at high temperatures
D. Wolf	781	Structure-energy correlation for grain boundaries in f.c.c. metals—III. Symmetrical tilt boundaries
D. Wolf	791	Structure-energy correlation for grain boundaries in f.c.c. metals—IV. Asymmetrical twist (general) boundaries
I. N. Klimenko	799	Anomaly of the yield stress and magnetic state in γ -Fe-18Cr-Ni alloys
J. Crampon and R. Duclos	805	Creep and microstructure of electrical discharge machinable Si ₃ N ₄ composites
U-In Chung and Jai-Young Lee	811	A kinetic study on the hydrogen induced amorphization in ErNi ₂ laves phase
Y. Shiwa, H. P. Stüwe and E. Pink	819	Anelastic effects in molybdenum due to the precipitation and dissolution of oxides at low temperatures
A. Coujou, Ph. Lours, N. A. Roy, D. Caillard and N. Clement	825	Determination of the local tensile axis direction in a TFM <i>in situ</i> strained γ' single crystal—a finite element approach
M. Y. He, H. C. Cao and A. G. Evans	839	Mixed-mode fracture: the four-point shear specimen
S. Kajiwarra and T. Kikuchi	847	Shape memory effect and related transformation behavior in Fe-Ni-C alloys
Y. Koyama	857	<i>In situ</i> observation of spinodal decomposition in In-35 at.% Tl-13.5 at.% Pb alloys
A. H. Chokshi and T. G. Langdon	867	The nucleation and growth of cavities in a superplastic quasi-single phase copper alloy
<i>Corrigenda</i>	879	

NUMBER 6

J. M. Howe and N. Prabhu	881	The structure of kinks at dislocation interphase boundaries and their role in boundary migration—I. Experimental observation of kink motion
N. Prabhu and J. M. Howe	889	The structure of kinks at dislocation interphase boundaries and their role in boundary migration—II. Kinetic analyses including kink motion

- | | | |
|---|------|---|
| J. T. Staley Jr and A. Saxena | 897 | Mechanisms of creep crack growth in 1 wt% antimony-copper: implications for fracture parameters |
| Y. Umakoshi, T. Sakagami,
T. Hirano and T. Yamane | 909 | High temperature deformation of MoSi ₂ single crystals with the C11 _b structure |
| F. J. Humphreys and
P. N. Kalu | 917 | The plasticity of particle-containing polycrystals |
| L. A. Bendersky,
W. J. Boettinger,
B. P. Burton,
F. S. Biancaniello and
C. B. Shoemaker | 931 | The formation of ordered ω -related phases in alloys of composition Ti ₄ Al ₃ Nb |
| C. S. Pande and
E. Dantsker | 945 | On a stochastic theory of grain growth—II |
| B. L. Adams, Jun Wu Zhao
and D. O'Hara | 953 | Analysis of interface damage heterogeneity in polycrystalline materials |
| Gang Wan and P. R. Sahm | 967 | Ostwald ripening in the isothermal rheocasting process |
| R. Shimizu, J. Harase and
D. J. Dingley | 973 | Prediction of secondary recrystallization texture in Fe-3% Si by three-dimensional texture analysis |
| F. Hehmann | 979 | Metastable phase transformation of rapidly solidified Mg-base Mg-Al alloys |
| R. A. MacKay and
M. V. Nathal | 993 | γ' Coarsening in high volume fraction nickel-base alloys |
| M. Yoshihara and
R. B. McLellan | 1007 | The diffusion of hydrogen in palladium-boron solid solutions |
| P. E. Magnusen,
D. J. Srolovitz and
D. A. Koss | 1013 | A simulation of void linking during ductile microvoid fracture |
| Yu Zhong-Hai, Xie Yi-Fan
and Gao Jia | 1023 | Texture distribution through-the-thickness after cold-rolling of 3% silicon steel |
| W. Krakow | 1031 | Multiplicity of atomic structure for $\Sigma = 17/[001]$ symmetrical tilt boundaries in gold |
| C. Rieker and D. G. Morris | 1037 | Heterogeneous nucleation during rapid solidification by laser surface melting |
| W-B. Li and
K. E. Easterling | 1045 | The influence of particle shape on Zener drag |
| O. Blaschko, R. Glas and
P. Weinzierl | 1053 | The formation of ordered δ' -phase in Al-Li alloys by diffuse and small angle neutron scattering |

- | | | |
|---|------|--|
| Y. L. Klipfel, M. Y. He,
R. M. McMeeking,
A. G. Evans and
R. Mehrabian | 1063 | The processing and mechanical behavior of an aluminum matrix composite reinforced with short fibers |
| P. M. Kelly, A. Jostsons
and R. G. Blake | 1075 | The orientation relationship between lath martensite and austenite in low carbon, low alloy steels |
| R. F. Cook | 1083 | Segregation effects in the fracture of brittle materials: Ca-Al ₂ O ₃ |
| N. Rouag, G. Vigna and
R. Penelle | 1101 | Evolution of local texture and grain boundary characteristics during secondary recrystallisation of Fe-3%Si sheets |
| W. Y. Yeung | 1109 | Non-octahedral deformation activity in cold rolled 70:30 brass and its influence on the development of brass texture |
| M. Kikuchi, T. Urabe,
G. Cliff and
G. W. Lorimer | 1115 | The loss of driving force due to volume diffusion ahead of a migrating boundary in a cellular precipitation reaction |
| T. G. Nieh and
J. Wadsworth | 1121 | Superplastic behaviour of a fine-grained, yttria-stabilized, tetragonal zirconia polycrystal (Y-TZP) |
| M. D. Thouless | 1135 | Fracture of a model interface under mixed-mode loading |
| J. Svoboda and V. Sklenička | 1141 | Thermal cavity nucleation at intergranular inclusions in high temperature creep |
| G. Vekinis, M. F. Ashby
and P. W. R. Beaumont | 1151 | <i>R</i> -curve behaviour of Al ₂ O ₃ ceramics |
| Y-H. Chiao and I-Wei Chen | 1163 | Martensitic growth in ZrO ₂ —an <i>in situ</i> , small particle, TEM study of a single-interface transformation |
| H. Matsui and M. Koiwa | 1175 | Hydride precipitation in vanadium thin foils under stress |
| W. C. Johnson and
P. W. Voorhees | 1183 | On the classification of phase transitions involving changes in composition |
| L. M. Hsiung and
N. S. Stoloff | 1191 | A point defect model for fatigue crack initiation in Ni ₃ Al + B single crystals |

NUMBER 7

- | | | |
|----------------|------|---|
| O. B. Pedersen | 1201 | Overview No. 89: Thermoelasticity and plasticity of composites—II. A model system |
| O. B. Pedersen | 1221 | Overview No. 89: Mechanism maps for cyclic plasticity and fatigue of single phase materials |

- | | | |
|---|------|---|
| P. S. Follansbee, J. C. Huang and G. T. Gray | 1241 | Low-temperature and high-strain-rate deformation of nickel and nickel-carbon alloys and analysis of the constitutive behavior according to an internal state variable model |
| J. R. Dryden and G. R. Purdy | 1255 | On the role of applied and misfit stress in discontinuous precipitation |
| R. D. K. Misra and T. V. Balasubramanian | 1263 | Stress enhanced grain boundary segregation of impurity elements in a low alloy steel |
| L. Contardo and G. Guénin | 1267 | Training and two way memory effect in Cu-Zn-Al alloy |
| J. Shirokoff, J. Cheung and U. Erb | 1273 | On the usefulness of epitaxy experiments in evaluating interface models |
| J.-S. Wang and Z. Suo | 1279 | Experimental determination of interfacial toughness curves using Brazil-nut-sandwiches |
| A. A. Golestaneh and J. M. Carpenter | 1291 | Study of the martensitic transformation in shape-memory nitinol alloy by time-of-flight neutron diffraction techniques |
| Ho Yong Lee and Suk-Joong L. Kang | 1307 | Chemically induced grain boundary migration and recrystallization in Al_2O_3 |
| T. Magnin, R. Chieragatti and R. Oltra | 1313 | Mechanism of brittle fracture in a ductile 316 alloy during stress corrosion |
| Yinong Liu and P. G. McCormick | 1321 | Factors influencing the development of two-way shape memory in NiTi |
| K. I. Moore, D. L. Zhang and B. Cantor | 1327 | Solidification of Pb particles embedded in Al |
| A. Kimura and H. K. Birnbaum | 1343 | Anomalous strain rate dependence of the serrated flow in Ni-H and Ni-C-H alloys |
| W. C. Johnson, T. A. Abinandanan and P. W. Voorhees | 1349 | The coarsening kinetics of two misfitting particles in an anisotropic crystal |

NUMBER 8

- | | | |
|--|------|---|
| D. Juul Jensen and N. Hansen | 1369 | Flow stress anisotropy in aluminium |
| T. Kawabata, T. Abumiya, T. Kanai and O. Izumi | 1381 | Mechanical properties and dislocation structures of TiAl single crystals deformed at 4.2–293 K |
| J. Harase and R. Shimizu | 1395 | Texture evolution by grain growth in the presence of MnS and AlN precipitates in Fe-3% Si alloy |
| J. J. Hoyt | 1405 | The continuum theory of nucleation in multicomponent systems |
| R. Raj | 1413 | Premelting at triple grain junctions |

- | | | |
|--|------|--|
| G. Sasaki, D. Shindo,
K. Hiraga, M. Hirabayashi
and T. Takasugi | 1417 | High resolution electron microscopy of tilt boundary in $\text{Ni}_3(\text{Al}_{0.6}\text{Ti}_{0.4})$ bicrystal |
| Jin Yu and J. O. Chung | 1423 | Creep rupture by diffusive growth of randomly distributed cavities—I. Instantaneous cavity nucleation |
| Jin Yu and J. O. Chung | 1435 | Creep rupture by diffusive growth of randomly distributed cavities—II. Continual cavity nucleation |
| W. A. Spitzig | 1445 | Effect of hydrostatic pressure on deformation, damage evolution, and fracture of iron with various initial porosities |
| H. J. Frost, C. V. Thompson
and D. T. Walton | 1455 | Simulation of thin film grain structures—I. Grain growth stagnation |
| K. Y. Hour and
J. F. Stubbins | 1463 | Crack growth behavior and failure micromechanisms in three heat resistant materials at elevated temperature |
| Ph. Chapellier, R. K. Ray
and J. J. Jonas | 1475 | Prediction of transformation textures in steels |
| H. E. Dève, A. G. Evans,
G. R. Odette, R. Mehrabian,
M. L. Emiliani and
R. J. Hecht | 1491 | Ductile reinforcement toughening of γ -TiAl: effects of debonding and ductility |
| G. J. Mahon, J. M. Howe
and A. K. Vasudevan | 1503 | Microstructural development and the effect of interfacial precipitation on the tensile properties of an aluminum/silicon-carbide composite |
| P. Desnain, Y. Fautrelle,
J.-L. Meyer, J.-P. Riquet
and F. Durand | 1513 | Prediction of equiaxed grain density in multicomponent alloys, stirred electromagnetically |
| Y.-J. Baik and D. N. Yoon | 1525 | The discontinuous precipitation of a liquid phase in Mo-Ni induced by diffusional coherency strain |
| F. D. Fischer | 1535 | A micromechanical model for transformation plasticity in steels |
| L. Renaud, F. Fouquet,
A. Elhamdaoui, J. P. Millet,
H. Mazille and J. L. Crolet | 1547 | Surface alloys obtained on mild steel by laser treatment of electroless nickel coatings |
| P. Barreau, C. Gérard,
J. F. Fries et J. P. Traverse | 1555 | Influence de la ségrégation dynamique du soufre sur le comportement mécanique du nickel pur |
| J. T. Evans, Wang Ningyun
and H. W. Chandler | 1565 | Creep of fibre composite beams in bending |
| P. H. Leo, W. W. Mullins,
R. F. Sekerka and J. Viñals | 1573 | Effect of elasticity on late stage coarsening |

- Sun Ig Hong and C. Laird 1581 Mechanisms of slip mode modification in f.c.c. solid solutions
- Dong-Il Kwon and R. J. Asaro 1595 Hydrogen-assisted ductile fracture in spheroidized 1518 steel

NUMBER 9

i 1990 Acta Metallurgica Gold Medal

- G. Grewal and S. Ankem 1607 Modeling matrix grain growth in the presence of growing second phase particles in two phase alloys
- M. Yamashita, M. Yoshioka, T. Mimaki, S. Hashimoto and S. Miura 1619 Stress-corrosion-cracking of (100)-twist boundaries in Cu-9 at.%Al alloy
- Junmin Liu, Yaohe Zhou and Baolu Shang 1625 Lamellar eutectic stable growth—I. Modeling
- Junmin Liu, Yaohe Zhou and Baolu Shang 1631 Lamellar eutectic stable growth—II. Experiment on Al-Si eutectic
- Ll. Mañosa, A. Planes, D. Rouby and J. L. Macqueron 1635 Acoustic emission in martensitic transformations
- K. F. Ha, Y. B. Xu, X. H. Wang and Z. Z. An 1643 A study on the dislocation-free zone ahead of the crack tips in bulk metallic single crystals
- F.-S. Shieu and S. L. Sass 1653 Experimental and theoretical studies of the dislocation structure of NiO-Pt interfaces
- Eon-Sik Lee and Young G. Kim 1669 A transformation kinetic model and its application to Cu-Zn-Al shape memory alloys—I. Isothermal conditions
- Eon-Sik Lee and Young G. Kim 1677 A transformation kinetic model and its application to Cu-Zn-Al shape memory alloys—II. Non-isothermal conditions
- Zhai Tong-Guang, Lin Shi and Xiao Ji-Mei 1687 Influence of non-geometric effect of PSB on crack initiation in aluminium single crystal
- Bao-Tong Ma and Campbell Laird 1693 The effect of ramp-loading on short crack growth kinetics and life behavior of copper single crystals in fatigue
- R. H. Jones 1703 Analysis of hydrogen-induced subcritical intergranular crack growth of iron and nickel
- X. Chen, R. Caretta, W. Zielinski and W. W. Gerberich 1719 Carbon/oxygen synergism during elevated temperature sustained load cracking
- Y. Limoge 1733 Activation volume for diffusion in a metallic glass

- | | | |
|--|------|--|
| L. A. Xue, D. S. Farquhar,
T. W. Noh, A. J. Sievers
and R. Raj | 1743 | Optical and mechanical properties of zinc sulphide diamond composites |
| M. Hayakawa, K. Adachi
and M. Oka | 1753 | Crystallographic analysis of the monoclinic herringbone structure in an arc-melted ZrO_2 -2 mol% Y_2O_3 alloy |
| M. Hayakawa, K. Adachi
and M. Oka | 1761 | Tweed contrast with (223) habit in arc-melted zirconia-yttria alloys |
| F. J. J. van Loo, B. Pieraggi
and R. A. Rapp | 1769 | Interface migration and the Kirkendall effect in diffusion-driven phase transformations |
| B. Pieraggi, R. A. Rapp,
F. J. J. van Loo
and J. P. Hirth | 1781 | Interfacial dynamics in diffusion-driven phase transformations |

NUMBER 10

- | | | |
|--|------|--|
| H. R. Shercliff and
M. F. Ashby | 1789 | Overview No. 90: A process model for age hardening of aluminium alloys—I. The model |
| H. R. Shercliff and
M. F. Ashby | 1803 | Overview No. 90: A process model for age hardening of aluminium alloys—II. Applications of the model |
| M. Sundararaman, W. Chen,
V. Singh and R. P. Wahi | 1813 | TEM investigation of γ' free bands in Nimonic PE16 under LCF loading at room temperature |
| A. G. Khachaturyan and
D. E. Laughlin | 1823 | Structural transformations during decomposition in Cu-Be alloys |
| Kyung-Tae Park,
Enrique J. Lavernia and
Farghalli A. Mohamed | 1837 | Creep behavior and substructure in an Al-Li alloy |
| J. Harase, R. Shimizu and
N. Takahashi | 1849 | Coincidence grain boundary and (100)[001] secondary recrystallization in Fe-3% Si |
| Z. G. Liu, T. Al-Kassab
and P. Haasen | 1857 | The atomic structure of Al-B2 interfaces in a Ni-Be alloy |
| U. Gahn and W. Pitsch | 1863 | The intermediate states of single-phase short-range order reactions—Monte Carlo study |
| S. P. Gupta and R. Nakkalil | 1871 | Kinetics of discontinuous coarsening of cellular precipitate in a Ni-8 at.% In alloy |
| D. M. Farkas, T. Yamashita
and J. Perkins | 1883 | On the energetics of flickering contrast observed in TEM images of an aged 53Cu-45Mn-2Al damping alloy |
| F. Zok and C. L. Hom | 1895 | Large scale bridging in brittle matrix composites |
| K. Davanas and
A. A. Solomon | 1905 | Theory of intergranular creep cavity nucleation, growth and interaction |

- | | | |
|--|------|---|
| T. Leffers and
J. B. Bilde-Sørensen | 1917 | Intra- and intergranular heterogeneities in the plastic deformation of brass during rolling |
| H. J. Fecht | 1927 | Thermodynamic properties and stability of grain boundaries in metals based on the universal equation of state at negative pressure |
| A. Heinz and P. Neumann | 1933 | Crack initiation during high cycle fatigue of an austenitic steel |
| T. L. Dragone and W. D. Nix | 1941 | Geometric factors affecting the internal stress distribution and high temperature creep rate of discontinuous fiber reinforced metals |
| N. P. Cannon, E. M. Schulson,
T. R. Smith and H. J. Frost | 1955 | Wing cracks and brittle compressive fracture |
| E. M. Schulson | 1963 | The brittle compressive fracture of ice |
| R. N. Ghosh, R. V. Curtis
and M. McLean | 1977 | Creep deformation of single crystal superalloys—modelling the crystallographic anisotropy |
| R. N. Wright and
J. R. Knibloe | 1993 | The influence of alloying on the microstructure and mechanical properties of P/M Ni ₃ Al |
| A. Roósz and H. E. Exner | 2003 | Ternary restricted-equilibrium phase diagrams—I. A first report: general principles and definitions |
| A. Roósz and H. E. Exner | 2009 | Ternary restricted-equilibrium phase diagrams—II. Practical application: aluminium-rich corner of the Al–Cu–Mg system |
| P. R. Rios | 2017 | Effect of size distribution on the kinetics of normal grain growth and of particle coarsening |
| G. S. Nakayama and
J. C. Gibeling | 2023 | Constant substructure creep of aluminum following stress reductions |

NUMBER 11

- | | | |
|---|------|---|
| P. Rozenak, I. M. Robertson
and H. K. Birnbaum | 2031 | HVEM studies of the effects of hydrogen on the deformation and fracture of AISI type 316 austenitic stainless steel |
| I. Dutta and D. L. Bourell | 2041 | Influence of dislocation density and distribution on the aging behavior of 6061 Al–SiC _w composites |
| W. A. Curtin and
K. Futamura | 2051 | Microcrack toughening? |
| K. Ishizaki | 2059 | Phase diagrams under high total gas pressures—Ellingham diagrams for hot isostatic press processes |
| J. Noordhuis and
J. Th. M. De Hosson | 2067 | Ne implantation induced transformation in stainless steel |

- | | | |
|--|------|--|
| Kai-Tak Wan and
B. R. Lawn | 2073 | Surface forces at crack interfaces in mica in the presence of capillary condensation |
| Sun Ig Hong and C. Laird | 2085 | Transient cyclic stress-strain response and cumulative damage in Cu-16 at.% Al single crystals fatigued under variable straining |
| G. A. Henshall and
A. K. Miller | 2101 | Simplifications and improvements in unified constitutive equations for creep and plasticity—I. Equations development |
| G. A. Henshall and
A. K. Miller | 2117 | Simplifications and improvements in unified constitutive equations for creep and plasticity—II. Behavior and capabilities of the model |
| Chingshen Li | 2129 | Vector CTD analysis for crystallographic crack growth |
| Chonghua Zhong,
Nengyun Jin (N. Y. Jin),
Xin Zhou, Erkou Meng
and Xianfeng Chen | 2135 | Cyclic deformation of AISI-310 stainless steel—I. Cyclic stress-strain responses |
| Nengyun Jin (N. Y. Jin),
Chonghua Zhong
and Xianfeng Chen | 2141 | Cyclic deformation of AISI-310 stainless steel—II. Saturation dislocation structures |
| Kyung-Tae Park,
Enrique J. Lavernia
and Farghalli A. Mohamed | 2149 | High temperature creep of silicon carbide particulate reinforced aluminum |
| R. B. McLellan, C. Ko
and F. R. Brotzen | 2161 | The fast diffusion of Au in Pb |
| Baihe Miao, Keming Fang,
Weimin Bian and
Guoxun Liu | 2167 | On the microstructure of graphite spherulites in cast irons by TEM and HREM |
| A. T. Motta and
D. R. Olander | 2175 | Theory of electron-irradiation-induced amorphization |
| D. K. Das and R. Sivakumar | 2187 | Modelling of the temperature and the velocity of ceramic powder particles in a plasma flame—I. Alumina |
| D. K. Das and R. Sivakumar | 2193 | Modelling of the temperature and the velocity of ceramic powder particles in a plasma flame—II. Zirconia |
| P. Vennégues,
M. C. Cadeville,
V. Pierron-Bohnes and
M. Afyouni | 2199 | Strong decrease of the activation energy as a function of Al content in FeAl _x alloys ($x \leq 30$ at.%) deduced from kinetic measurements of ordering |
| F.-S. Shieu, R. Raj and
S. L. Sass | 2215 | Control of the mechanical properties of metal-ceramic interfaces through interfacial reactions |

- | | | |
|---|------|---|
| B. W. Choi, Y. G. Deng,
C. McCullough, B. Paden
and R. Mehrabian | 2225 | Densification of rapidly solidified titanium aluminide
powders—I. Comparison of experiments to HIPing models |
| B. W. Choi, J. Marschall,
Y. G. Deng, C. McCullough,
B. Paden and R. Mehrabian | 2245 | Densification of rapidly solidified titanium aluminide
powders—II. The use of a sensor to verify HIPing models |
| H. Zhao and G. C. Weatherly | 2253 | The formation of multi-domain precipitates in a Ni-W
alloy |
| H. Inui, S. I. Hong
and C. Laird | 2261 | A TEM study of dislocation structures in fatigued
Cu-16 at.% Al single crystals |
| T. G. Zocco, M. F. Stevens,
P. H. Adler, R. I. Sheldon
and G. B. Olson | 2275 | Crystallography of the $\delta \rightarrow \alpha$ phase transformation in a
Pu-Ga alloy |
| J. Dutkiewicz and G. Kostorz | 2283 | Strengthening of cobalt-tungsten alloys upon discontinu-
ous precipitation |
| C. Marsh and Haydn Chen | 2287 | An <i>in situ</i> X-ray diffraction study of precipitation from
a supersaturated solid solution: the γ' precipitate in a
Ni-12.5 at.% Al alloy |
| G. Ceder, D. de Fontaine,
H. Dreyse, D. M. Nicholson,
G. M. Stocks and
B. L. Gyorffy | 2299 | <i>Ab initio</i> study of the Cu-Pd one-dimensional long period
superstructure phase diagram |
| K. T. Venkateswara Rao
and R. O. Ritchie | 2309 | Mechanisms influencing the cryogenic fracture-toughness
behavior of aluminum-lithium alloys |
| R. H. Dauskardt,
W. C. Carter, D. K. Veirs
and R. O. Ritchie | 2327 | Transient subcritical crack-growth behavior in transform-
ation-toughened ceramics |
| Weizhong Chen,
T. Y. Hsu (Xu Zuyao),
Shuchuan Chen and
Jihua Zhang | 2337 | The internal friction of the pearlitic, bainitic and marten-
sitic transformations in Fe-Ni-C alloys |
| G. Palumbo and K. T. Aust | 2343 | Structure-dependence of intergranular corrosion in high
purity nickel |
| B. Cunningham and
K. H. G. Ashbee | 2353 | Operational characteristics of a marmem device |
| R. D. K. Misra and
T. V. Balasubramanian | 2357 | Effects of microstructure on grain boundary segregation
processes in low alloy steels |
| Gang Wan and P. R. Sahm | 2367 | Particle growth by coalescence and Ostwald ripening in
rheocasting of Pb-Sn |

- | | | |
|---|------|--|
| B. G. Pound | 2373 | Hydrogen trapping in precipitation-hardened alloys |
| Qiang-Li, W. Kesternich,
H. Schroeder, D. Schwahn
and H. Ullmaier | 2383 | Gas densities in helium bubbles in nickel measured by small angle neutron scattering |
| C. A. Hipsley,
M. Strangwood
and J. H. DeVan | 2393 | Effects of chromium on crack growth and oxidation in nickel aluminide |
| B. N. Cox | 2411 | Interfacial sliding near a free surface in a fibrous or layered composite during thermal cycling |
| B. N. Cox, M. S. Dadkhah,
M. R. James, D. B. Marshall,
W. L. Morris and M. Shaw | 2425 | On determining temperature dependent interfacial shear properties and bulk residual stresses in fibrous composites |
| M.-J. Lii, X.-F. Chen,
Y. Katz and
W. W. Gerberich | 2435 | Dislocation modeling and acoustic emission observation of alternating ductile/brittle events in Fe-3wt%Si crystals |
| T. Mohri | 2455 | Kinetic path for a relaxation process of an f.c.c. disordered phase |
| R. A. Vandermeer | 2461 | Modeling diffusional growth during austenite decomposition to ferrite in polycrystalline Fe-C alloys |
| H. J. Hegge and
J. Th. M. De Hosson | 2471 | Microstructure of laser treated Al alloys |
| A. Christian, O. Kanert and
J. Th. M. De Hosson | 2479 | Dislocation dynamics in vanadium: a nuclear magnetic resonance and transmission electron microscopic study |
| J. LLorca and M. Elices | 2485 | Fracture resistance of fiber-reinforced ceramic matrix composites |
| A. C. F. Cocks and
A. A. Searle | 2493 | Cavity growth in ceramic materials under multiaxial stress states |
| L. C. Lim and T. Watanabe | 2507 | Fracture toughness and brittle-ductile transition controlled by grain boundary character distribution (GBCD) in polycrystals |
| R. Brezny and D. J. Green | 2517 | The effect of cell size on the mechanical behavior of cellular materials |
| J. H. Chen, L. Zhu
and H. Ma | 2527 | On the scattering of the local fracture stress σ_f^* |
| S. M. Pickard and B. Derby | 2537 | The deformation of particle reinforced metal matrix composites during temperature cycling |

- | | | |
|---|------|--|
| R. Monzen, Y. Sumi,
K. Kitagawa and T. Mori | 2553 | Nanometer grain boundary sliding in Cu: [011] symmetric tilt boundaries, misorientation dependence and anisotropy |
| B. Cunningham and
K. H. G. Ashbee | 2561 | An <i>in situ</i> SEM Kossel X-ray diffraction study of pseudo-elasticity |
| A. G. Crouch and
J. Robertson | 2567 | Creep and oxygen diffusion in magnetite |
| A. Zielinski | 2573 | Effect of hydrogen on internal friction of some f.c.c. metals |
| T. Ungár, Ph. A. Dubey
and G. Kostorz | 2583 | Distortion scattering due to Guinier-Preston zones in Al-Ag |
| M. Gremaud, M. Carrard
and W. Kurz | 2587 | The microstructure of rapidly solidified Al-Fe alloys subjected to laser surface treatment |
| W. J. Moberly, J. L. Proft,
T. W. Duerig and
R. Sinclair | 2601 | Deformation, twinning and thermo-mechanical strengthening of $Ti_{50}Ni_{47}Fe_3$ |
| J. Yang, C. Cady, M. S. Hu,
F. Zok, R. Mehrabian
and A. G. Evans | 2613 | Effects of damage on the flow strength and ductility of a ductile Al alloy reinforced with SiC particulates |
| M. A. Gibson and
G. W. Delamore | 2621 | Nucleation and growth kinetics of stable and metastable eutectics in FeSiB metallic glasses |
| C. P. Ling and
P. G. McCormick | 2631 | Strain rate sensitivity and transient behaviour in an Al-Mg-Si alloy |
| H. M. Jensen | 2637 | Mixed mode interface fracture criteria |
| I. E. Reimanis,
B. J. Dalgleish, M. Brahy,
M. Rühle and A. G. Evans | 2645 | Effects of plasticity on the crack propagation resistance of a metal/ceramic interface |
| M. Sutcu and W. B. Hillig | 2653 | The effect of fiber-matrix debond energy on the matrix cracking strength and the debond shear strength |
| L. Cooreman,
J. Van Humbeeck
and L. Delaey | 2663 | Thermoelectric power measurements on stabilised Cu-Zn-Al martensite |
| T. Hirano | 2667 | Improvement of room temperature ductility of stoichiometric Ni_3Al by unidirectional solidification |
| T. Senuma, H. Yada,
R. Shimizu and J. Harase | 2673 | Textures of low carbon and titanium bearing extra low carbon steel sheets hot rolled below their A_{R3} temperatures |
| G. J. Merchant and
S. H. Davis | 2683 | Morphological instability in rapid directional solidification |
| N. J. Petch and
R. W. Armstrong | 2695 | The tensile test |

- | | | |
|--|------|---|
| V. Pierron-Bohnes,
S. Lefebvre, M. Bessiere
and A. Finel | 2701 | Short range order in a single crystal of Fe-19.5 at.% Al in the ferromagnetic range measured through X-ray diffuse scattering |
| W. Wagner | 2711 | The influence of precursor fluctuations on the kinetics of α -Co precipitation in dilute CuCo alloys |
| G. Spanos and
H. I. Aaronson | 2721 | The interfacial structure and habit plane of proeutectoid cementite plates |
| J. Pons, F. C. Lovey
and E. Cesari | 2733 | Electron microscopy study of dislocations associated with thermal cycling in a Cu-Zn-Al shape memory alloy |
| R. R. Kapoor and
T. W. Eagar | 2741 | Thermodynamic data from diffusion couples—I |
| R. R. Kapoor and
T. W. Eagar | 2755 | Thermodynamic data from diffusion couples—II |

**Reproduced with the permission of Pergamon Press Inc., by University
Microfilms Inc. Duplication or resale without permission is prohibited.**

